

Fossils In North Dakota

FIND is a newsletter dedicated to helping young readers (in age or spirit) express their love of fossils and paleontology, and to help them learn more about the world under their feet. Each issue will be broken up into sections including Feature Fossils, Travel Destinations, Reader Art, Ask Mr. Lizard, and more!

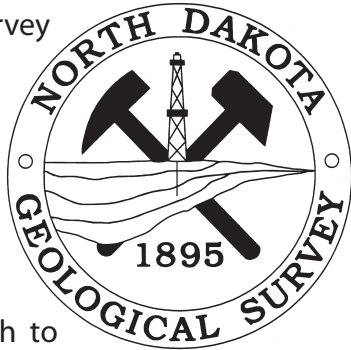
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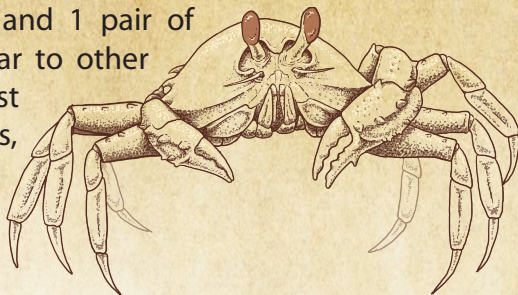
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<https://www.dmr.nd.gov/ndfossil/kids/newsletterkids.asp>



Feature Fossil: *Camarocarcinus*

The Cannonball Sea, which covered much of North Dakota during the Paleocene 60 million-years-ago, left behind sandstones and mudstones filled with different fossils from **marine** (relating to the sea) animals. *Camarocarcinus* (meaning "vault crab"), was one of many small **crustaceans** (arthropods* that generally live in the water, such as crabs, shrimp, and lobster) living in the Cannonball Sea. Upon closer examination of what first appears to be a rock, the black shells have **symmetrical** (mirror image) spines, maybe grooves for limbs, or if exceptionally complete, claws or legs folded under the **carapace** (back shell). They are **decapods** ("ten-footed" – 4 paired legs and 1 pair of claws), and similar to other crabs are most likely scavengers, eating anything from algae to worms and fish.



*Arthropod: **invertebrates** (without a backbone) with segmented bodies, paired jointed limbs, covered in a hard shell (exoskeleton) made of chitin, such as in insects, spiders, or crustaceans.

Special Interest: What Is A Fossil?

This newsletter is called "Fossils" in North Dakota, but what exactly is a fossil? The word "fossil" comes from the Latin word *fossilis*, which means "dug up", or *fodere*, which means "to dig." This generally means some kind of impression or the remains of something once living. What is left over is generally **petrified**, or replaced with surrounding minerals and turned to rock.

A fossil *impression* means something once living left some sort of a trace behind. For example, a dinosaur could have left a trackway – or impressions of their feet. A tree could have fallen, leaving behind an impression of branches or bark while the rest of the tree rotted away. If a plant or animal itself was fossilized, then what are left behind are actual remains. Bones, claws, teeth, and sometimes even skin from animals can be fossilized.

Trees and plants can turn into coal, or be replaced with silica (which makes up quartz and agates). Sometimes fossils can be made from beautiful materials, such as **pyrite** (fools gold) or even opal, depending on what minerals surround the remains after they were buried. Fossils can come in many colors – bones can be black, brown, or even white. Shells often even have iridescent mother-of-pearl.

A natural cast of a fossil can also occur. That happens when the shell or bone is encased in rock, but instead of turning into rock itself, it is replaced with mud or clay. When excavated, it looks just like the original on the outside, but not on the inside.

So how long does it take to fossilize something? Thousands to millions of years, depending on the environment. Take a woolly mammoth for example – something that lived during the last Ice Age, 10,000 years ago. If a mammoth had died and was buried, their bones begin to undergo mineral replacement, and turn to rock. If however a mammoth had died and was buried in ice, the remains could stay relatively unchanged – which is how we know what kind of fur and skin they had.

For a plant or animal to turn completely into stone, or agate, or pyrite, it would need much more time, however.

Paleo-Puzzle Answers:

Across:

1 - The remains of a prehistoric organism preserved in petrified form or as a mold or cast in rock. **FOSSIL**

2 - Name of the tyrant-lizard king. **TYRANNOSAURUS**

Down:

2 - A portable shelter made of cloth for use when camping. **TENT**

3 - Hot material below Earth's crust which forms lava or rock when brought to the surface. **MAGMA**

4 - The study of living organisms. **BIOLOGY**

5 - A state of matter which tends to flow; solid ___ gas. **LIQUID**

An extra Paleo-Puzzle surprise is a **BONE-us!**

Reader Art

We want YOUR artwork! Please e-mail us a digital copy, or mail your traditional art (that you don't want returned) to our address in Bismarck, ND.

Ask Mr. Lizard...

Why did you decide to be a Paleontologist?

The simplest answer is because I love monsters, and becoming a Paleontologist meant working with *REAL* monsters! Dragons, griffons, chimera – the more monstrous the better. Like many readers, I was bit by the dino-bug at an early age, and caught a chronic case of dinosauritis. Dinosaurs fit with my love of monsters, their bones fit with my fascination of anatomy - all together making the perfect profession for me. - Becky

Just Imagine...

The light of day was fading as the sun dropped below the horizon. Many of the larger animals had already bedded down for the night, leaving the world to their **nocturnal** (active at night) counterparts. The sea water softly bubbled and whispered in the cool night air, moving gently across the sandy beaches. Tiny spindly legs, only inches long, tapped along previously unseen holes in the sand. Cautiously crawling out, a small *Camarocarcinus* crab takes in its surroundings. Scuttling along sideways on point-tipped legs, it notices a small dead minnow washed up on the shore – a massive feast! Snipping bite-sized pieces off with practiced ease, *Camarocarcinus* begins making short work of the little fish.

Another moonlit form scuttled out of the darkness towards the fish – another *Camarocarcinus*. Wary of the newcomer, the first stops eating, raising its body as high as it can, spreading its claws wide. The second crab, apparently missing one of its legs, also raises its claws threateningly before scuttling back into the darkness. Apparently the potential cost of a quick meal was just too high for the injured crab.

Settling back down again, the first *Camarocarcinus* quickly finishes its meal. Daintily making its way across the beach, it moves off to continue exploring.

Special Interest: Public Fossil Digs

This year the ND Geological Survey is hosting four public fossil digs: Marmarth, Pembina Gorge, Medora, and Whiskey Creek. Each site has its own feel, with some great for beginners, and others reserved for those who want a challenge.

Marmarth (June 24-29) is perfect for experienced diggers who want a lot of hiking and climbing, or what we call prospecting. Depending on the area, fossils range from 65-million-year-old crocodiles and turtles to Triceratops and Tyrannosaurus. You could work for a whole day and find nothing, or hit the next big find – it's all luck.

Pembina Gorge (July 7-15) is a site we're excited to return to. The area is home to 80-million-year-old prehistoric sea birds, giant squid, sea turtles the size of a car, and swimming marine reptiles like the mosasaur and plesiosaur. Great for people with a little experience digging, but also for determined beginners.

Medora (July 23-29) is a wonderful site for beginners. With a shade tent, all the water you can drink, and a port-a-potty on site, this is by far our most comfortable dig. Fossils here include 60-million-year-old turtles, fish, crocodiles, champsosaurs, and more.

Whiskey Creek (August 6-15), our last public dig of the season, is one of the tougher digs, but also one of the most beautiful. There is a moderate hike from the vehicles to the site, but the destination is good for those that want to sit-and-dig, or go out prospecting. The area includes 60-million-year-old crocodiles, turtles, fish, and more.

For detailed information on costs, age requirements, etc., check out:

<https://www.dmr.nd.gov/ndfossil/digs/digs.asp>
